

In the Claims:

A complete listing of all claims pending in the present application including claims status thereof is provided with markings to show changes made relative to all prior versions of the claims in the application.

1. (currently amended): A method of case hardening an article of titanium or a titanium-based alloy, or an article of zirconium or a zirconium-based alloy, wherein comprising treating the article is with heat treated for a period of at least 12 hours at at least one or more temperatures in temperature selected from the range of 850°C to 900°C and at a pressure in the order of atmospheric pressure in an oxygen diffusion atmosphere, the atmosphere comprising:
 - a) a carrier gas which does not react chemically with the article in the said temperature range, and
 - b) molecular oxygen, wherein the a concentration of oxygen in the oxygen diffusion atmosphere is in the range of 10 volumes per million to 400 volumes per million.
2. (currently amended): A The method as claimed in according to claim 1, in which wherein the oxygen concentration is in the range of 75 to 300 volumes per million.
3. (currently amended): A The method as claimed in according to claim 2 1, in which wherein the oxygen concentration is in the range of 100 to 200 volumes per million.

4. (currently amended): A The method according to any one of the preceding claims claim 1, in which the case hardened further comprising subjecting the article is subjected to a further heat treatment at a temperature in the range of 500°C to 900°C in an atmosphere having an oxygen concentration of at least 5000 volumes per million so as to form a visible surface oxide layer on the article that improves its to improve tribological properties of the article.
5. (currently amended): A The method as claimed in according to claim 4, in which wherein the atmosphere in which the tribological surface oxide layer is formed contains from 15% to 25% by volume of oxygen and from 75% to 85% by volume of argon.
6. (currently amended): A The method as claimed in any one of the preceding claims according to claim 1, in which wherein the said carrier gas is argon.
7. (currently amended) A case hardened article of titanium, or a titanium-based alloy, or of zirconium or a zirconium-based alloy obtainable provided by a the method according to any one of the preceding claims claim 1.